

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-7 (Canceled).

Claim 8 (Currently Amended): A method for generating an image file in a digital still camera, comprising steps of:

- generating image data;
- generating an image file containing
 - image data generated in said generating step, and
 - information that designates color space information to be used by an image output apparatus separated from said digital still camera, and that reflects image output characteristics of said image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space by said image output apparatus without first being converted into an intermediate color space, and said color space information being different from a color space at a time of image data generation; and
- storing said image data in association with said information that designates said color space information.

Claim 9 (Previously Presented): The method of Claim 8, further comprising steps of:

- designating said information that designates said color space information for use by said image output apparatus; and
- storing a plurality of items of said information that designates said color space information designated for different types of color spaces, wherein
 - said step of designating said information that designates said color space information includes steps of
 - displaying said stored information that designates said color space information, and
 - selecting one item of said information that designates said color space information from among said displayed items of said information that designates said color space information.

Claim 10 (Previously Presented): The method of Claim 8, further comprising steps of:

designating said information that designates said color space information for use by said image output apparatus; and

storing a plurality of combinations of identifying information for candidate image output apparatuses and associated information that designates said color space information for each candidate image output apparatus; wherein

said step of designating said information that designates said color space information includes

displaying the candidate image output apparatuses for performing image processing, and

selecting one of the candidate image output apparatuses from among the candidate image output apparatuses displayed in said displaying step.

Claim 11 (Previously Presented): The method of Claim 8, further comprising a step of:

assembling an output file that contains said image data, and said information that designates said color space information.

Claim 12 (Original): The method of Claim 11, further comprising a step of:

sending said output file to an external device via at least one of an electric signal and an electromagnetic signal.

Claim 13 (Currently Amended): A method for generating image data in a digital still camera, comprising steps of:

acquiring image data;

designating with information that designates color space information to be used by an image output apparatus separated from said digital still camera, and that reflects image output characteristics of said image output apparatus and an output color space to be used by said image output apparatus in color space conversion without first being converted to an intermediate color space, said color space information being different from a color space at a time of image data generation, and said image output apparatus being a different apparatus than an apparatus employed to accomplish said acquiring step; and

generating an image file containing

image data obtained by said acquiring step, and

the information that designates said color space information.

Claim 14 (Original): The method of Claim 13, wherein:

said output color space having a gamut that is at least as wide as a color space used in synthesis of said image data.

Claims 15 and 16 (Canceled).

Claim 17 (Currently Amended): A digital still camera comprising:

an image data generation mechanism configured to generate image data;

an image file assembly mechanism configured to assemble an image file containing image data generated by said image data generation mechanism, and information that designates color space information to be used by an image output apparatus separated from the digital still camera, and that reflects image output characteristics of said image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space by an independent image output apparatus without first being converted to an intermediate color space, and said color space information being different from a color space at a time of image data generation; and

a memory configured to store said image data in association with said information that designates said color space information.

Claim 18 (Previously Presented): A digital still camera according to Claim 17, wherein:

said information that designates said color space information includes matrix values for use in color space conversion processing to be executed by said independent image output apparatus.

Claim 19 (Previously Presented): A digital still camera according to Claim 17, further comprising:

a designation mechanism configured to designate said information that designates said color space information for use by said independent image output apparatus, wherein

said memory is configured to hold a plurality of color space information entries, each containing information that designates said color space information associated with different candidate image output apparatuses,

said designation mechanism includes

a display that is configured to display said plurality of entries of color space information, and

a selection mechanism that is configured to select one of said plurality of entries of color space information from among the plurality of entries presented by said display.

Claim 20 (Previously Presented): A digital still camera according to Claim 17, further comprising:

a designation mechanism configured to designate information that designates said color space information for use by said independent image output apparatus, wherein

said memory is configured to hold a plurality of combinations of identifying information for candidate image output apparatuses and associated information that designates said color space information for each candidate image output apparatus, wherein

said designation mechanism includes

a display configured to display the candidate image output apparatuses for performing image processing, and

a selection mechanism configured to select one of the candidate image output apparatuses from among the candidate image output apparatuses presented by said display.

Claims 21 and 22 (Canceled).

Claim 23 (Previously Presented): A digital still camera according to Claim 17, further comprising:

a file assembly mechanism configured to compile an output file that contains said image data, and said information that designates said color space information.

Claim 24 (Previously Presented): A digital still camera according to Claim 23, wherein: said output file is an Exif file.

Claim 25 (Previously Presented): A digital still camera according to Claim 24, wherein: the information that designates said color space information is a tag stored in a Makernote portion of the Exif file.

Claim 26 (Previously Presented): A digital still camera according to Claim 17, wherein: said memory includes a removable memory card.

Claim 27 (Previously Presented): A digital still camera according to Claim 23, further comprising:

an I/O interface configured to transmit said output file as at least one of an electric signal and an electromagnetic signal.

Claim 28 (Currently Amended): A digital still camera comprising:

an image file acquisition mechanism configured to acquire image data;
a designation mechanism configured to designate an output color space to be used by an independent image output apparatus in color space conversion of said image data, said independent image output apparatus being a different apparatus than said image file acquisition mechanism; and
a file assembly mechanism configured to assemble an image file containing
image data obtained by said image file acquisition mechanism, and
information that designates color space information to be used by said independent image output apparatus in color space conversion of said image data from an input color space to said output color space without first being converted to an intermediate color space, and that reflects image output characteristics of said independent image output apparatus, said color space information being different from a color space at a time of image data generation.

Claim 29 (Previously Presented): A digital still camera according to Claim 28, wherein:
said output color space has a gamut that is at least as wide as a color space used in synthesis of said image data.

Claim 30 (Currently Amended): A computer program product, comprising:

a computer storage medium; and
a computer program code mechanism embedded in the computer storage medium for causing a computer to generate an image file in a digital still camera, the computer program code mechanism having a first computer code device configured to generate image data, and
a second computer code device configured to generate an image file containing said generated image data, together with associated information that designates color space information to be used by an independent image output apparatus separated from said digital still camera, and that reflects image output characteristics of said independent image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space for use by said independent image output apparatus without first being converted to an intermediate color space, and said color space information being different from a color space at a time of image data generation.

Claim 31 (Previously Presented): The computer program product of Claim 30, further comprising:

a third computer code device configured to designate said information that designates said color space information for use by said independent image output apparatus, wherein said computer storage medium configured to hold a plurality of color space information entries, each containing information that designates said color space information associated with different candidate image output apparatuses,

the third computer code device including

a display mechanism that is configured to provide a signal output suitable for presentation on a display so as to present said plurality of entries of color space information, and

a selection mechanism that is configured to select one of said plurality of entries of color space information from among the plurality of entries presented by said display.

Claim 32 (Previously Presented): The computer program product of Claim 30, further comprising:

a third computer code device configured to designate said information that designates said color space information for use by said independent image output apparatus, wherein said computer storage medium is configured to hold a plurality of combinations of identifying information for candidate image output apparatuses and associated information that designates said color space information for each candidate image output apparatus, wherein

said designation mechanism includes

the third computer code device including

a display mechanism that is configured to provide a signal output suitable for presentation on a display so as to present the candidate image output apparatuses for performing image processing, and

a selection mechanism that is configured to select one of the candidate image output apparatuses from among the candidate image output apparatuses presented by said display.

Claim 33 (Previously Presented): The computer program product of Claim 30, further comprising:

a third computer code device configured to compile an output file that contains said image data, and said information that designates said color space information.

Claim 34 (Currently Amended): A computer program product, comprising:

a computer storage medium; and

a computer program code mechanism embedded in the computer storage medium for causing a computer to acquire image data in a digital still camera, the computer program code mechanism having a first computer code device configured to implement an image file acquisition mechanism configured to acquire image data,

a second computer code device configured to implement a designation mechanism configured to designate an output color space to be used by an independent image output apparatus separated from said digital still camera in color space conversion of said image data, said independent image output apparatus being a different apparatus than said image file acquisition mechanism; and

a third computer code device configured to implement a file assembly mechanism configured to assemble an image file containing

image data obtained by said image file acquisition mechanism, and

information that designates color space information to be used by said

independent image output apparatus in color space conversion of said image data from an input color space to said output color space without first being converted to an intermediate color space, and that reflects image output characteristics of said image output apparatus, said color space information being different from a color space at a time of image data generation.

Claim 35 (Original): The computer program product of Claim 34, wherein:

said output color space having a gamut that is at least as wide as a color space used in synthesis of said image data.

Claim 36 (Currently Amended): A computer program product, comprising:

a computer storage medium; and

a computer program code mechanism embedded in the computer storage medium for causing a computer to acquire an image file in a digital still camera, the computer program code mechanism having

a first computer code device configured to implement an image file data acquisition mechanism that retrieves information from said image file, said information designating color space information to be used by an image output apparatus separated from said digital still camera, and reflecting image output characteristics of said image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space without first being converted to an intermediate color space, and said color space information being different from a color space at a time of image data generation; and

a second computer code device configured to implement a color conversion processing mechanism that converts the color space of said image data from the input color space to the output color space on the basis of said color space information when said color space information has been retrieved.

Claim 37 (Previously Presented): The computer program product of Claim 36, wherein:

if said information that designates said color space information is not retrieved, said color conversion processing mechanism converts the color space of said image data using predetermined color space information.

Claims 38-42 (Canceled).

Claim 43 (Currently Amended): An image output method for image files containing image data and information that designates color space information to be used by an image output apparatus, and that reflects image output characteristics of said image output apparatus, said image data and said information that designates said color space information being input from an independent digital still camera separated from the image output apparatus, comprising steps of:

acquiring an image file containing image data;

retrieving said information that designates said color space information from said image file acquired in said acquiring step, said color space information designating color space conversion of said image data from an input color space to an output color space without first being converted to an intermediate color space, and said color space information being different from a color space at a time of image data generation; and

converting the color space of said image data from the input color space to the output color space based on said color space information retrieved in said retrieving step.

Claim 44 (Previously Presented): The method of Claim 43, further comprising:

determining when said information that designates said color space information is not retrieved, and then converting the color space of said image data based on predetermined color space information.

Claim 45 (Currently Amended): An image output apparatus for image files containing image data and information that designates color space information to be used by said image output apparatus, and that reflects image output characteristics of said image output apparatus, said image data and said information that designates said color space information being input from an independent digital still camera separated from the image output apparatus, comprising:

an image file acquisition mechanism configured to acquire an image file containing image data;

a color space retrieving mechanism configured to retrieve said information that designates said color space information from said image file acquired by said image file acquisition mechanism, said color space information designating color space conversion of said image data from an input color space to an output color space without first being converted to an intermediate color space, and said color space information being different from a color space at a time of image data generation; and

a color space converter configured to convert the color space of said image data from the input color space to the output color space based on said color space information retrieved by said color space retrieving mechanism.

Claim 46 (Previously Presented): An image output apparatus according to Claim 45, wherein:

if said information that designates said color space information is not retrieved, color space converter converts the color space of said image data based on predetermined color space information.

Claim 47 (Previously Presented): An image output apparatus according to Claim 45, wherein:

said image data contained in said image file is represented by a first color space;
said image file acquisition mechanism converts the color space of the image data contained in said image file from said first color space to a second color space; and
said color space converter converts the color space of said image data from said second color space to a third color space.

Claim 48 (Previously Presented): An image output apparatus according to Claim 47, wherein:

said first color space is a YCbCr color space;
said second color space is a first RGB color space; and
said third color space is a second RGB color space wherein at least a portion thereof has a gamut equal to or wider than the first RGB color space.

Claim 49 (Previously Presented): An image output apparatus according to Claim 48, wherein:

said second color space has a width at least equal to that of a color space during synthesis of said image data.

Claim 50 (Previously Presented): An image output apparatus according to Claim 48, wherein:

said third color space is a CIELAB color space in place of the second RGB color space.

Claim 51 (Previously Presented): An image output apparatus according to Claim 45, further comprising:

an I/O device configured to transmit said image data after being converted into a color space defined by said color space information as at least one of an electric signal and an electromagnetic signal.

Claims 52 and 53 (Canceled).

Claim 54 (Currently Amended): An image data output method, comprising steps of:

- (a) generating image data;
 - (b) generating an image file containing
 - image data generated in said generating step, and
 - information that designates color space information to be used by an independent image output apparatus, and that reflects image output characteristics of said independent image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space by said independent image output apparatus without first being converted to an intermediate color space, and said color space information being different from a color space at a time of image data generation;
 - (c) storing said image data in an output image file in association with said information that designates said color space information;
 - (d) acquiring the output image file containing image data;
 - (e) retrieving said information that designates said color space information from said output image file acquired in said acquiring step; and
 - (f) converting the color space of said image data based on said color space information retrieved in said retrieving step,
- wherein steps (a), (b), and (c) are implemented by a digital still camera separated from said independent image output apparatus and steps (d), (e), and (f) are implemented by said independent image output apparatus.

Claim 55 (Currently Amended): An image data output system, comprising:

a digital still camera, including,

an image data generation mechanism configured to generate image data,

an image file assembly mechanism configured to assemble an image file containing image data generated by said digital still camera, and information that designates color space information to be used by an image output apparatus separated from said still digital camera, and that reflects image output characteristics of said image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space by said image output apparatus without first being converted to an intermediate color space, and said color space information being different from a color space at a time of image data generation,

a memory configured to store said image data in an output image file in association with said information that designates said color space information; and the image output apparatus including

an image file acquisition mechanism configured to acquire the output image file containing image data,

a color space retrieving mechanism configured to retrieve said information that designates said color space information from said output image file acquired by said image file acquisition mechanism, and

a color space converter configured to convert the color space of said image data from the input color space to the output color space based on said color space information retrieved by said color space retrieving mechanism.

Claim 56 (Currently Amended): An image data output system comprising:

a digital still camera, including

an image file acquisition mechanism configured to acquire image data;

a designation mechanism configured to designate an output color space to be used by an image output apparatus separated from said digital still camera in color space conversion of said image data, said image output apparatus being a different apparatus than said image file acquisition mechanism, and

a file assembly mechanism configured to assemble an image file containing image data obtained by said image file acquisition mechanism, and information that designates color space information to be used by said image output apparatus in color space conversion of said image data from an input color space to said output color space without first being converted to an intermediate color space, and that reflects image output characteristics of said image output apparatus, said color space information being different from a color space at a time of image data generation; and the image output apparatus including

an image file acquisition mechanism configured to acquire the image file,

a color space retrieving mechanism configured to retrieve said information that designates said color space information from said image file, and

a color space converter configured to convert the color space of said image data based on said color space information retrieved by said color space retrieving mechanism.